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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/505,421	08/24/2004	Tak-Kyu Kim	69576-014	7569

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EXAMINER

COSTALES, SHRUTI S

ART UNIT PAPER NUMBER

1714

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/505,421

Applicant(s)

KIM ET AL.

Examiner

Shruti S. Costales

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/24/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement (IDS) submitted on August 24, 2004 filed in compliance with the provisions of 37 CFR § 1.97. Accordingly, the information disclosure statement filed by the applicant has been considered by the Examiner.

### ***Claim Objections***

2. Claim 1 is objected to because of the recitation of "Where R<sub>1</sub> and R<sub>2</sub>..." after formula 4 seems to be a new sentence due to the capitalized 'W' in "Where". It is suggested that the applicant amend the claim to replace "Where" with "wherein" (all lowercase) in order to comply with the requirement that each claim must appear as one complete sentence. Further, it is not clear in claim 1 how R<sub>1</sub> and R<sub>2</sub> each represent hydrogen, an alkyl group and an aryl group, therefore, it is suggested that the "and" be replaced with an "or" for clarity [*Emphasis Added*].

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harashina (U.S. Patent Number 6,753,363) in view of Hagiwara et al. (U.S. Patent Number 3,805,985) and Forschirm (U.S. Patent Number 5,886,066).

Harashina discloses a polyacetal resin composition having a polyacetal resin, a flame retardant, and a basic nitrogen-containing compound (Col. 2, lines 49-54), wherein the resin composition has high flame retardancy and stability (Col. 2, lines 38-48). Polyacetal resin has excellent friction and wear resistance (Col. 1, lines 12-15). It

Art Unit: 1714

is also disclosed that the polyacetal resin is a macromolecular compound containing the oxymethylene group ( $--CH_2O--$ ) as a predominant constituent unit and includes polyoxymethylene (Col. 3, lines 13-62). It is further disclosed that the flame-retardant is a phosphorus containing compound (Col. 3, lines 63-67) and includes a thermoplastic resin such as ethylene-vinyl acetate copolymer (Col. 8, lines 11-63), wherein the phosphorus and ethylene-vinyl acetate copolymer are present in an amount of 3 to 80% by weight (Col. 9, lines 20-24).

Further, an antioxidant is disclosed including hindered phenols in an amount of 0.01 to 5 parts by weight per 100 parts by weight of polyacetal resin (Col. 32, lines 19-67 and Col. 33, lines 1-26). Further, heat stabilizers are disclosed in an amount of 0.01 to 5 parts by weight per 100 parts by weight of polyacetal resin (Col. 33, lines 27-58). Harashina also discloses that the polyacetal resin composition can be injection molded, extrusion molded, etc., into various articles such as mechanical parts in the automobile and electric/electronic fields including gears (Col. 37, lines 6-60).

The difference between Harashina and the presently claimed invention is the requirement of (i) a specified content of polyethylene and vinylacetate in the polyethylene vinylacetate copolymer, and (ii) 0.1 to 2 parts by weight of hydroxyl pentaerythritol fatty acid ester in the presently cited claims.

With respect to the difference in (i), Hagiwara, which is drawn to resin coated layer having antishock durability (Col. 1, lines 4-6), discloses an ethylene/vinyl acetate copolymer having a vinyl acetate content of 35% by weight and the copolymer has a specific gravity of 0.97 (Col. 6, lines 15-20). It would have been obvious to one of

Art Unit: 1714

ordinary skill in the art to use the specific type of ethylene/vinyl acetate copolymer as disclosed by Hagiwara in the composition of Harashina because the resulting product would possess anti-shock durability (Col. 2, lines 66-68 and Col. 3, lines 1-2), therein intrinsically improving the quality of the molded article resulting therefrom for use in mechanical and electrical applications.

With respect to the difference in (ii), Forschirm, which is drawn to thermoplastic polymer compositions including polyoxymethylene with improved wear properties (Col. 1, lines 6-7 and Col. 2, lines 10-58), discloses about 0.2% by weight of triethyleneglycol-bis-3-(3-t-butyl-4-hydroxy-5-methylphenyl)- propionate (Col. 5, lines 50-52 and Col. 6, lines 10-11), which is a species of hydroxyl pentaerythritol fatty acid ester. It would have been obvious to one of ordinary skill in the art to add triethyleneglycol-bis-3-(3-t-butyl-4-hydroxy-5-methylphenyl)- propionate to the composition of Harashina because said ester would act as a processing aid (Col. 5, lines 50-59) therein intrinsically improving the moldability of the composition into various articles, thereby obtaining the invention as set forth in the presently cited claims.

### ***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shruti S. Costales whose telephone number is (571) 272-8389. The examiner can normally be reached on Monday - Friday, 6:30 AM - 3:00 PM.

Art Unit: 1714

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

SSC  
Shruti S. Costales  
August 2, 2005

*Vasu Jagannathan*  
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